IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellant:	Kung-Ling KO	§	Confirmation No.:	1443
Serial No.:	10/667,081	§	Group Art Unit:	2416
Filed:	September 18, 2003	§	Examiner:	Mon Cheri S. Davenport
For:	Virtual Channel Remapping	§	Atty. Docket No.:	2120-02400

APPEAL BRIEF

Mail Stop Appeal Brief—Patents
Commissioner for Patents
PO Box 1450
Alexandria, VA 22313-1450

Date: June 15, 2009

Sir:

Appellant hereby submits this Appeal Brief in connection with the above-identified application. A Notice of Appeal was electronically filed on April 16, 2009.

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I. REAL PARTY IN INTEREST

The real party in interest is Brocade Communication Systems, Inc., a Delaware corporation, having its principal place of business in San Jose, California.

II. RELATED APPEALS AND INTERFERENCES

Appellant is unaware of any related appeals or interferences.

III. STATUS OF THE CLAIMS

Originally filed claims:	1-54
Added claims:	55-91
Claim cancellations:	1-55
Presently pending claims:	56-91
Presently appealed claims:	56-91

IV. STATUS OF THE AMENDMENTS

No claims were amended after the Final Office Action dated January 16, 2009.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This section provides a concise explanation of the subject matter defined in each of the independent claims and separately argued dependent claims involved in the appeal, referring to the specification by page and line number or to the drawings by reference characters as required by 37 C.F.R. § 41.37(c)(1)(v). Each element of the claims is identified with a corresponding reference to the specification or drawings where applicable. Note that the citation to passages in the specification or drawings for each claim element does not imply that the limitations from the specification and drawings should be read into the corresponding claim element. Also note that these specific references are not exclusive; there may be additional support for the subject matter elsewhere in the specification and drawings.

The current application discloses remapping logic to overcome the tendency for switches made by different manufacturers or even different generations of switches to not support the same number of virtual channels. A switch configured with this virtual channel remapping functionality may first determine the virtual channel mapping protocols of the other network devices to which it is connected. Using these virtual channel mapping protocols, the switch configured with the virtual channel remapping functionality is able to remap frames between different virtual channel mapping protocols, especially protocols using a different number of virtual channels.

Claim 56 recites a switch (Fig.4 ref.402) including a first port for connection to a first external device (Fig.4 ref.405). The first port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The switch also includes a second port for connection to a second external device (Fig.4 ref.408). The second port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The switch further includes switching logic connected to the first port and the second port for transferring packets between the first and second ports (p.11 ℓ.10–11), and control logic coupled to the first port and the second port to configure the first port to operate using a first number of virtual channels and the second port to operate using a second number of virtual channels. The first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The switch also includes remapping logic coupled to the first port, the second port and the switching logic, the

remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels (Fig.5; Fig.6; p.9 ℓ.18–p.14 ℓ.15).

Claim 62 recites a network (Fig.7) including a first external device (Fig.7 ref.700); a second external device (Fig.7 ref.702); and a switch (Fig.4 ref.402). The switch includes a first port connected to the first external device (Fig.4 ref.405). The first port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The switch also includes a second port is connected to the second external device (Fig.4 ref.408), and the second port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The switch also includes switching logic connected to the first port and the second port for transferring packets between the first and second ports (p.11 ℓ.10–11). The switch further includes control logic coupled to the first port and the second port to configure the first port to operate using a first number of virtual channels and the second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The switch further includes remapping logic coupled to the first port, the second port, and the switching logic, the remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels (Fig.5; Fig.6; p.9 ℓ.18–p.14 ℓ.15).

Claim 68 recites a method for operating a switch (Fig.4 ref.402), including transferring packets at a first port for connection to a first external device (Fig.4 ref.405). The first port is capable of operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The method also includes transferring packets at a second port for connection to a second external device (Fig.4 ref.408). The second port is capable of operating using a plurality of virtual channels (p.10 ℓ.16–17), and transferring packets between the first port and the second port (p.11 ℓ.10–11). The method also includes configuring the first port to operate using a first number of virtual channels and the second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The method also

includes remapping the first number of virtual channels to the second number of virtual channels utilizing a table to perform the remapping (Fig.5; p.9 ℓ.18–p.14 ℓ.15).

Claim 74 recites a switch (Fig.4 ref.402) including a first port for connection to a first external device (Fig.4 ref.405). The first port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The switch also includes a second port for connection to a second external device (Fig.4 ref.408). The second port is capable of transferring packets. The switch also includes switching logic connected to the first port and the second port for transferring packets between the first and second ports and capable of operating using a plurality of virtual channels (p.11 ℓ.10–11). The switch also includes control logic coupled to the first port, switching logic to configure the first port to operate using a first number of virtual channels, and switching logic to operate using a second number of virtual channels, wherein the first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The switch also includes remapping logic coupled to the first port and the switching logic, the remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels (Fig.5; p.9 ℓ.18–p.14 ℓ.15).

Claim 80 recites a network (Fig.7) including a first external device (Fig.7 ref.700); a second external device (Fig.7 ref.702); and a switch (Fig.4 ref.402). The switch includes a first port connected to the first external device (Fig.4 ref.405). The first port is capable of transferring packets and operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The switch also includes a second port connected to the second external device and capable of transferring packets (Fig.4 ref.408). The switch further includes switching logic connected to the first port and the second port for transferring packets between the first and second ports and capable of operating using a plurality of virtual channels (p.11 ℓ.10–11). The switch also includes control logic coupled to the first port and the switching logic to configure the first port to operate using a first number of virtual channels and the switching logic to operate using a second number of virtual channels, wherein the first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The switch further includes remapping logic coupled to the first port and the

switching logic, the remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels (Fig.5; Fig.6; p.9 ℓ.18–p.14 ℓ.15).

Claim 86 recites a method for operating a switch, the method including transferring frames at a first port for connection to a first external device (Fig.4 ref.405). The first port is capable of operating using a plurality of virtual channels (p.10 ℓ.16–17). The virtual channels designate logical subdivisions of a link and are not used for routing of packets (p.8 ℓ.13–19). The method also includes transferring frames at a second port for connection to a second external device (Fig.4 ref.408), and transferring frames between the first port and the second port and using a plurality of virtual channels; (p.11 ℓ.10–11). The method further includes configuring the first port to operate using a first number of virtual channels and the transfer between the first and second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number (p.11 ℓ.3–13; p.13 ℓ.3–p.14 ℓ.15). The method also includes remapping the first number of virtual channels to the second number of virtual channels utilizing a table to perform the remapping (Fig.5; p.9 ℓ.18–p.14 ℓ.15).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1) Whether claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89 are anticipated by Caldara et al. (U.S. Pat. No. 6,236,655, hereinafter "Caldara") under 35 U.S.C. 102(b).

2)Whether claims 60-61, 66-67, 72-73, 78-79, 84-85, and 90-91 are obvious due to Caldara in view of Oberman et al. (U.S. Pat. Publication No. 2003/0026267, hereinafter "Oberman") under 35 U.S.C. 103(a).

VII. ARGUMENT

The claims do not stand or fall together. Instead, Appellants present separate arguments for various independent and dependent claims. After a brief discussion of the cited art, each of these arguments is separately argued below and presented with separate headings as required by 37 C.F.R. § 41.37(c)(1)(vii).

A. Discussion of the Cited Art—Caldara

At Fig.1 ref.12, Caldara illustrates two to-switch processing ports ("TSPPs"), each having the same number of links. The associated text, col.2 ℓ.60–65, states:

> As shown in FIG. 1, system 10 includes two TSPPs 12, labeled as TSPP0 and TSPP1. Each TSPP 12 can be implemented as an application specific integrated circuit (ASIC). Each TSPP 12 may include a number of connections or links 22. Links 22 may support asynchronous transfer mode (ATM) . . . .

At Fig.1 ref.32, Caldara illustrates a from-switch processing port ("FSPP"). The associated text, col.3 ℓ.50–53, states: "Switch fabric 16 is connected to each TSPP 12. Switch fabric 16 is operable to transfer a data cell, such as control cells 24, from a TSPP 12 to a from-switch processing port (FSPP)."

B. Anticipation Rejections of Claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89

Claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89 stand rejected under 35 U.S.C. § 102(b) as allegedly anticipated by Caldara. Independent claim 56 recites, in part, "transferring packets between said first and second ports; control logic coupled to said first port and said second port to configure said first port to operate using a first number of virtual channels and said second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number." Independent claims 62 and 68 recite similar limitations. Independent claims 74, 80, and 86 are similar except the switching logic (claims 74 and 80) or transfer (claim 86) use the second number of virtual channels instead of the second port. However, Examiner erred in rejecting the claims because the cited references fail to teach or suggest the limitations. On page 2 of the Final Office Action, Examiner cites to-switch processing port 0 ("TSPP0") of Figure 1 of Caldara as allegedly teaching the first port. Examiner next cites TSPP1 as allegedly teaching the second port. However, TSPP0 and TSPP1 have the same number of links as seen in Fig. 1 of

Caldara. On page 3 of the Final Office Action, Examiner cites col.2 ℓ.60–64 of Caldara as teaching "wherein the first number is not equal to the second number." At the cited location, Caldara states "Each TSPP 12 may include a number of connections or links 22." However, such a statement does not teach or suggest the two TSPPs using a different number of links, especially when the figure being referenced shows otherwise. Furthermore, no other art of record teaches or suggests the limitation. For at least this reason, Examiner erred in rejecting independent claims 56, 62, 68, 74, 80, and 86, along with their dependent claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89 over Caldara.

Additionally, independent claim 56 recites, in part, "transferring packets between said first and second ports." Independent claims 62, 68, 74, 80, and 86 recite similar limitations. However, the cited references fail to teach or suggest the limitations. On page 2 of the Final Office Action, Examiner cites to-switch processing port 0 ("TSPP0") of Figure 1 of Caldara as allegedly teaching the first port. Examiner next cites TSPP1 as allegedly teaching the second port. At col.3 ℓ.50–53, Caldara states "Switch fabric 16 is connected to each TSPP12. Switch fabric 16 is operable to transfer a data cell, such as control cells 24, from a TSPP 12 to a from-switch processing port (FSPP)." As such, Caldara fails to teach or suggest transferring packets between said first and second ports as required by the claims because packets are not transferred between TSPP0 and TSPP1. Furthermore, no other art of record teaches or suggests the limitation. For at least this reason, Examiner erred in rejecting independent claims 56, 62, 68, 74, 80, and 86, along with their dependent claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89 over Caldara.

Assuming, arguendo, FSPP was meant to be cited as the second port, Examiner cites various points of Caldara as allegedly teaching "wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets . . . utilizing a table to remap the first number of virtual channels to the second number of virtual channels." However, Caldara does not teach or suggest remapping of virtual channels not used for routing of packets. Caldara teaches asynchronous transfer mode ("ATM") relay. Applicant submits that virtual connections of ATM and virtual channels are not properly equated. In ATM, virtual connections are effectively addresses used for routing cells. ATM operates by utilizing the virtual connection identification ("VCI") number to determine the output port, the basic routing function of a switch or router.

However, the virtual channels of the present claims expressly are not used for routing of packets. This is also clear because the actions of configuring the ports to operate using specific, different numbers of virtual channels makes no sense to one skilled in the art if the virtual channels are equated to addresses, the virtual connections of ATM. For at least this additional reason, Examiner erred in rejecting independent claims 56, 62, 68, 74, 80, and 86, along with their dependent claims 56-59, 62-65, 68-71, 74-77, 80-83, and 86-89 over Caldara.

C. Obviousness Rejections of Claims 60-61, 66-67, 72-73, 78-79, 84-85, and 90-91

Claims 60-61, 66-67, 72-73, 78-79, 84-85, and 90-91 stand rejected under § 103(a) as allegedly obvious due to Caldara in view of Oberman. These claims depend from the various independent claims discussed above. Examiner cites Oberman against the dependent limitations and Caldara against the base limitations. As explained above, Caldara does not teach or suggest the base limitations. Additionally, Oberman does not satisfy the deficiencies of Caldara. Therefore, Examiner erred in rejecting claims 60-61, 66-67, 72-73, 78-79, 84-85, and 90-91 over Caldara.

D. Conclusion

For the reasons stated above, Appellant respectfully submits that the Examiner erred in rejecting all pending claims. In the course of the foregoing discussions, Appellants may have at times referred to claim limitations in shorthand fashion, or may have focused on a particular claim element. This discussion should not be interpreted to mean that the other limitations can be ignored or dismissed, or that limitations from the specification can be imported into the claims. The claims must be viewed as a whole, and each limitation of the claims must be considered when determining the patentability of the claims. Moreover, it should be understood that there may be other distinctions between the claims and the prior art which have yet to be raised, but which may be raised in the future.

It is believed that no extensions of time or fees are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 C.F.R. § 1.136(a), and any fees required (including fees for net

addition of claims) are hereby authorized to be charged to Conley Rose, P.C.'s Deposit Account No. 03-2769.

Respectfully submitted,

/Tim D. Chheda/

Tim D. Chheda
PTO Reg. No. 60,752
CONLEY ROSE, P.C.
(713) 238-8000 (Phone)
(713) 238-8008 (Fax)
ATTORNEY FOR APPELLANTS

VIII. CLAIMS APPENDIX

1–55. (Canceled)

56. (Previously presented) A switch comprising:

a first port for connection to a first external device and capable of transferring packets and operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

a second port for connection to a second external device and capable of transferring packets and operating using a plurality of virtual channels;

switching logic connected to said first port and said second port for transferring packets between said first and second ports;

control logic coupled to said first port and said second port to configure said first port to operate using a first number of virtual channels and said second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping logic coupled to said first port, said second port and said switching logic, said remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels.

57. (Previously presented) The switch of claim 56, wherein said table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

58. (Previously presented) The switch of claim 56, wherein the control logic is configured to determine the first number based on data sent by the first external device and configured to determine the second number based on data sent by the second external device.

59. (Previously presented) The switch of claim 56, wherein the control logic is configured to determine the first number and second number during initialization.

60. (Previously presented) The switch of claim 56, wherein the switch is a Fibre Channel switch.

61. (Previously presented) The switch of claim 60, wherein the first external device and the second external device are Fibre Channel switches.

62. (Previously presented) A network comprising:

a first external device;

a second external device; and

a switch including:

a first port connected to said first external device and capable of transferring packets and operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

a second port connected to said second external device and capable of transferring packets and operating using a plurality of virtual channels;

switching logic connected to said first port and said second port for transferring packets between said first and second ports;

control logic coupled to said first port and said second port to configure said first port to operate using a first number of virtual channels and said second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping logic coupled to said first port, said second port and said switching logic, said remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels.

63. (Previously presented) The network of claim 62, wherein said table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

64. (Previously presented) The network of claim 62, wherein the control logic is configured to determine the first number based on data sent by the first external device and configured to determine the second number based on data sent by the second external device.

65. (Previously presented) The network of claim 62, wherein the control logic is configured to determine the first number and second number during initialization.

66. (Previously presented) The network of claim 62, wherein said switch is a Fibre Channel switch.

67. (Previously presented) The network of claim 66, wherein said first external device and said second external device are Fibre Channel switches

68. (Previously presented) A method for operating a switch, the method comprising:

transferring packets at a first port for connection to a first external device and capable of operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

transferring packets at a second port for connection to a second external device and capable of operating using a plurality of virtual channels;

transferring packets between the first port and the second port;

configuring the first port to operate using a first number of virtual channels and the second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping the first number of virtual channels to the second number of virtual channels utilizing a table to perform the remapping.

69. (Previously presented) The method of claim 68, wherein the table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

70. (Previously presented) The method of claim 68, wherein the first number is determined based on data sent by the first external device and the second number is determined based on data sent by the second external device.

71. (Previously presented) The method of claim 68, wherein the first number and second number are determined and the first and second ports are configured during initialization.

72. (Previously presented) The method of claim 68, wherein the switch is a Fibre Channel switch.

73. (Previously presented) The method of claim 72, wherein the first external device and the second external device are Fibre Channel switches.

74. (Previously presented) A switch comprising:

a first port for connection to a first external device and capable of transferring packets and operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

a second port for connection to a second external device and capable of transferring packets;

switching logic connected to said first port and said second port for transferring packets between said first and second ports and capable of operating using a plurality of virtual channels;

control logic coupled to said first port and said switching logic to configure said first port to operate using a first number of virtual channels and said switching logic to operate using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping logic coupled to said first port and said switching logic, said remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels.

75. (Previously presented) The switch of claim 74, wherein said table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

76. (Previously presented) The switch of claim 74, wherein the control logic is configured to determine the first number based on data sent by the first external device.

77. (Previously presented) The switch of claim 74, wherein the control logic is configured to determine the first number during initialization.

78. (Previously presented) The switch of claim 74, wherein the switch is a Fibre Channel switch.

79. (Previously presented) The switch of claim 78, wherein the first external device and the second external device are Fibre Channel switches.

80. (Previously presented) A network comprising:

a first external device;

a second external device; and

a switch including:

a first port connected to said first external device and capable of transferring packets and operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

a second port connected to said second external device and capable of transferring packets;

switching logic connected to said first port and said second port for transferring packets between said first and second ports and capable of operating using a plurality of virtual channels;

control logic coupled to said first port and said switching logic to configure said first port to operate using a first number of virtual channels and said switching logic to operate

using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping logic coupled to said first port and said switching logic, said remapping logic including and utilizing a table to remap the first number of virtual channels to the second number of virtual channels.

81. (Previously presented) The network of claim 80, wherein said table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

82. (Previously presented) The network of claim 80, wherein the control logic is configured to determine the first number based on data sent by the first external device.

83. (Previously presented) The network of claim 80, wherein the control logic is configured to determine the first number during initialization.

84. (Previously presented) The network of claim 80, wherein said switch is a Fibre Channel switch.

85. (Previously presented) The network of claim 84, wherein said first external device and said second external device are Fibre Channel switches

86. (Previously presented) A method for operating a switch, the method comprising:

transferring frames at a first port for connection to a first external device and capable of operating using a plurality of virtual channels, wherein virtual channels designate logical subdivisions of a link and are not used for routing of packets;

transferring frames at a second port for connection to a second external device;

transferring frames between the first port and the second port and using a plurality of virtual channels;

configuring the first port to operate using a first number of virtual channels and the transfer between the first and second port to operate using a second number of virtual channels, wherein the first number is not equal to the second number; and

remapping the first number of virtual channels to the second number of virtual channels utilizing a table to perform the remapping.

87. (Previously presented) The method of claim 86, wherein the table includes an incoming table to remap from the first number of virtual channels and an outgoing table to remap to the second number of virtual channels.

88. (Previously presented) The method of claim 86, wherein the first number is determined based on data sent by the first external device.

89. (Previously presented) The method of claim 86, wherein the first number is determined and the first port is configured during initialization.

90. (Previously presented) The method of claim 86, wherein the switch is a Fibre Channel switch.

91. (Previously presented) The method of claim 90, wherein the first external device and the second external device are Fibre Channel switches.

IX. EVIDENCE APPENDIX

None.

X. RELATED PROCEEDINGS APPENDIX

None.